

TANK Meeting 42; 26 July 2018



## Covering Report; TANK Draft Plan Change

TANK Meeting 42



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## 1. Introduction

- 1.1 This covering report provides explanation and background for changes and issues still outstanding or raised following discussion at meeting 41. A number of details still require further development and refinement.
- 1.2 The issues covered in this report include:
  - Minimum flows
  - Reservation of water
  - Plantation forestry
  - Water management zones and supporting maps
  - Values

## 2. Minimum/Trigger Flows

- 2.1 The use of 'trigger flow' was introduced to signify when a management action (such as a restriction on abstraction) would occur. It was suggested as a replacement for the term 'minimum flow' which was thought to be misleading in terms of how much control the council had on actual river flows (that are ultimately subject to the weather/climate).
- 2.2 However, the term 'minimum flow' is used in the NPSFM in relation to setting environmental flows and both the RPS and RRMP also refer extensively to 'minimum flow'. A change to 'trigger' while technically more correct, will require a large number of consequential changes and possible result in greater confusion. A number of TANK members have also indicated a preference to remain with 'minimum flow.' We have reverted to the use of 'minimum flow' in the Plan Draft and note that its real importance and relevance is how it is applied in rules and consent conditions.

### Introduction

- 2.3 This report provides some background to the decision making so far and a summary of information considered by the TANK group in coming to their decisions. However, there is currently no consensus around the management of the Ngaruroro River flows, including for minimum flows and allocation limits and this report sets out the range of the non-consensus.
- 2.4 At meeting 41, the TANK Group received information about the potential economic, social and cultural consequences of the management scenarios being considered for the TANK Plan Change. Modelling was carried out by Market Economics and iPansophy to assess the impacts of a range of changes including management scenarios that addressed;
  - the costs of mitigation measures to meet targets for sediment loss reduction,
  - stock exclusions and improved riparian land management,
  - nutrient management,
  - reduced allocations for groundwater takes,
  - increased minimum flows for surface water abstractions from the Ngaruroro and Tūtaekurī Rivers.

- 2.5 There were impacts on farm income as a result of the sediment and other mitigation scenarios. These impacts had flow-on effect to other parts of the agricultural supply chain which indicated a need for caution about timeframes for achieving water quality outcomes.
- 2.6 The greatest impact on social, cultural and economic well-being was as a result of changes to groundwater allocations and changes to minimum flows for surface water. While more detail for the various scenarios was supplied by the Agfirst modelling for the farm scale impacts, the wider economic model scenarios by Market Economics provided the comparisons between the base case (Scenario A) and the following changes;
- 2.6.1 contaminant mitigation measures on pastoral land
- 2.6.2 increasing the minimum flow flows for the Tūtaekurī and Ngaruroro Rivers.
- Scenario B considered the costs when 20% of irrigators are subject to water restrictions related to Ngaruroro 3,600 l/s and 6% related to the Tūtaekuri 2,500 l/s restrictions. G/w was based on 2013 levels of use.
- 2.6.3 decreasing the security of supply for groundwater takes
- Scenario C considers g/w use when allocations are reduced to a 9 in 10 year reliability. (the minimum flows remained the same as for scenario B)
- Note that scenario B and C both contain the contaminant mitigation costs for the irrigated land. It has been subsequently explained that the significance of the economic impact however, is in relation to the water management scenarios.
- 2.7 A number of issues were a source of confusion at the TANK meeting. A series of meetings were subsequently held with TANK stakeholders to clarify details and to further discuss and develop possible solutions. Essentially TANK stakeholders were facing choices between increased minimum flows that, unless significant, would result in marginal overall environmental and ecological improvements. They would have a substantial negative economic and social impact compared with that of retaining the status quo, whereby the economic and social impacts would be less detrimental and the state of the environment would be improved via other mitigation methods.
- 2.8 A central issue is the state of the river as a result of water abstraction and the extent to which current abstraction is causing a decline in the health of the native fisheries.
- 2.9 There are existing highly valued native fisheries that are acting as a proxy for understanding whether the flow management regime is appropriate in meeting the needs of instream values. There is little data available about the state and trends of the native fishery, except that they are agreed to be present. Supporting information<sup>1</sup> for the WCO application shows all of the Ngaruroro River sites had IBI (Fish Index of Biotic Integrity) scores in the top score range for the Hawkes Bay Region. All site IBI scores were also classed as 'excellent' in terms of their biotic integrity. The attributes of the 'excellent' class show that sites with these scores are comparable to sites without human impact, or in other words a 'natural state' when the presence or diversity of species is considered.

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<sup>1</sup> Significance of native fish diversity and ecological values of the Ngaruroro River: Technical memo to support the application for a Water Conservation Order (Ngaruroro River), Kate McArthur 2013

- 2.10 There are a number of assessment tools and methodologies to help understand the possible impacts of abstraction regimes on fisheries including IFIM and RHYHABSIM models and comparisons with changes to flow statistic like MALF.
- 2.11 There is a lot of reliance on understanding how levels of habitat protection can be used to protect instream values. Other calculations compare levels of abstraction with MALF to assess how much change a river ecosystem might be facing under different allocation regimes. It should be noted that minimum flow is not a measure of protection on its own. Also critical is how much water is being abstracted and how these two management levers interact and influence river health. Variations to the allocation limit and the minimum flow will have consequential impacts on water reliability and primary production and other abstractive uses.
- 2.12 This Plan change is relying on statistical analyses and modelled predictions about levels of change to help establish the balance between river flow triggers and protection for the native fisheries (and, by proxy, other instream values) and allocation limits.
- 2.13 Some of the relevant statistics are summarised in the following tables. Table 1 summarise habitat protection levels at different flows while Table 2 provides the allocation limits at various flows that would be set to ensure abstraction is at the agreed security of supply standards.

<b>Ngaruroro River - downstream of Fernhill</b>	<b>Flow for 90% habitat</b>	<b>Flow for 80% habitat</b>	<b>Flow for 70% habitat</b>	<b>Habitat protection at 2400 L/s</b>
<b>Naturalised MALF 4700 L/s</b>				
<b>Fast-water fish i.e. torrentfish</b>	4400 L/s	4000 L/s	3600 L/s	44%
<b>Moderate-water fish i.e. smelt</b>	2700 L/s	2200 L/s	1800 L/s	86%
<b>Slow-water fish i.e. common bully</b>	1200 L/s	<1000 L/s	<1000 L/s	100%
<b>Invertebrates (food producing)</b>	4200 L/s	3700 L/s	3200 L/s	47%

*Table 1: Flow Habitat data for the Ngaruroro River*

	Allocation limit (l/sec) for each flow (based on Q95 of 3981l/sec)				
	For 2400l/sec	For 2600l/sec	For 2800l/sec	For 3200l/sec	For 3600l/sec
<b>Allocation limit (l/sec)</b>	1581	1300	1181	781	381
<b>Reduction %</b>	0	17%	25%	50%	76%
<b>Allocation limit as % of MALF</b>	33.6	27	25%	16%	8%

Table 2: Changes to allocation limits at different minimum flows

- 2.14 Advice from Cawthron<sup>2</sup> is that information about varying habitat retention levels can be applied with historical methods and that historical methods can produce more conservative minimum flows. The advice also suggests that maintenance of invertebrate production is more dependent on allocation limits than minimum flow.
- 2.15 However, hydrological analysis is showing that the improvements to the habitat with increases to the minimum flow are not straightforward. An increase in the minimum flow from 2400l/sec to 3600l/sec does not result in an improvement in flows so that habitat protection increases from 44% to 70% for torrent fish. It means that abstraction of up to 1581l/sec ceases when flow reaches 3600l/sec.
- 2.16 impacts of changes to the minimum flow were summarised at a further meeting with some TANK members on Monday 2<sup>nd</sup> July. This summary is attached separately for reference.
- 2.17 Other Councils are using various percentages of MALF to guide allocation limits along with different combinations of habitat protection. Some recent approaches are summarised from the Cawthron advice to meeting 34.

	High degree of flow alteration % of MALF	Reasonably Environmentally Conservative <sup>3</sup>	Low Impact/conservative
Beca 2008	Abstraction >40% MALF	Total abstraction 20-30% MALF depending on instream values and base flow	
Horizons One Plan		<30% of MALF allocation	
Richter et al 2012		<20% of MALF (some changes to structure and minimal changes to ecosystem function.	Altering natural flows by <10% is environmentally conservative and natural structure and function maintained.
TDC and NCC	>30% higher risk	If instream values lower priority accept more risk	If instream values high priority allocation at 10-20% MALF

<sup>2</sup> Meeting 34. Considerations for Setting Low Flows and Allocation Limits, Joe Hay, Cawthron Institute

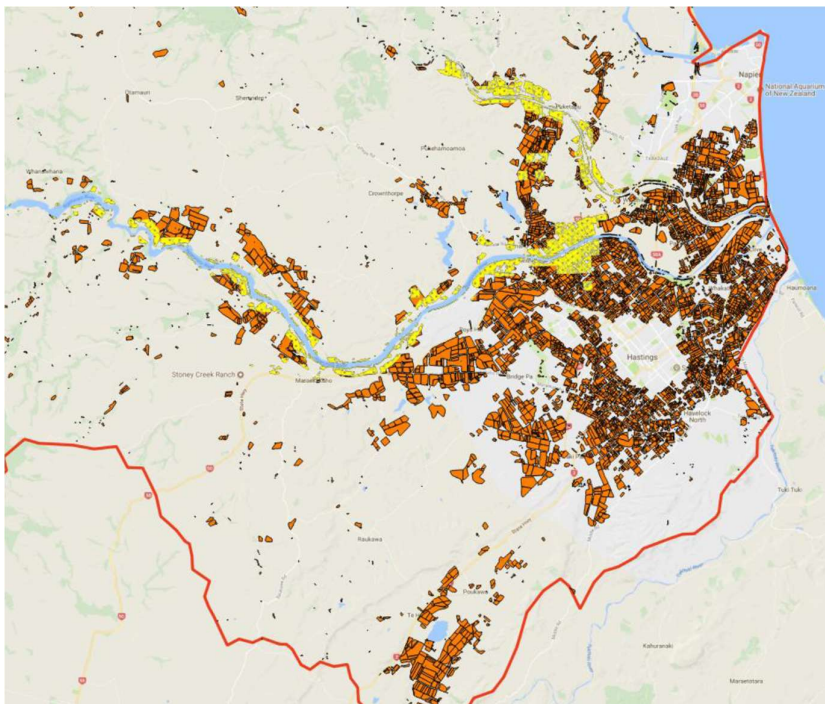
<sup>3</sup> Further support for importance of conservative allocation limits from bioenergetics model results

		Allocation of 20-30% of MALF Minimum flow at 70-80% habitat retention	90-100% habitat retention
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**Table 3: Alternative Allocation Assessments**

Impacts on water users and abstractive use

- 2.18 Agfirst calculated the impact of reduced security of supply on irrigated horticultural crops associated with an increase in minimum flow for 20% of the reference irrigated area to represent the impact from changes to a minimum flow of 2400l/sec at Fernhill (and 6% of the irrigated areas connected to 2000l/sec at Puketapu). The location of the surface takes for both the Tūtaekurī and Ngaruroro is shown generally as the yellow areas in Figure 1 below:



**Figure 1: Location of irrigated land (AgFirst: Modelling Water Restrictions and Nutrient Loss for horticulture in the TANK Catchment)**

- 2.19 The area subject to the Ngaruroro River minimum flow is estimated to be somewhere between 3400ha and 4400ha<sup>4</sup>.
- 2.20 The consequence of an increased minimum flow may result in either;
  - 2.20.1 existing water permit holders coping with a reduced security of supply

<sup>4</sup> From the AgFirst report and the Heretaunga Plains modelling report

2.20.2 allocations to permit holders being reduced (for example by pro rata reductions in allocation)

In either case, the investment into high value crops will reduce and the total areas irrigated will reduce. A land use change scenario was not modelled because of the difficulties in predicting the likely changes. However, the most likely scenario is change to “summary dry” area with the consequential impact on farm EBIT<sup>5</sup> and flow on effects.

As a result of new flow and allocation rules, there will be an increased interest in water storage. Timing and pathways become very important considerations as without adequate planning and time provided, primary producers will not be in a strong position to fund storage. With any significant change to minimum flows and allocation limits, the costs of the new water management regime should ideally be directed to new infrastructure and not into loss of production in the interim. Either way, the costs of the new water allocation regime are real and will be borne by landowners.

**Planning Areas, Water Permits and Maps**

- 2.21 The Ngaruroro Surface Water Management Zone (NSWMZ) is as shown in the attached planning map. Allocation limits are established for abstraction from the river as well as additional policies providing default allocation limits for any unlisted rivers.
- 2.22 The surface water allocation limit for the NSWMZ includes abstraction from Zone 1. Also provided is a groundwater allocation limit for groundwater takes that are not Zone 1. The limit is set at existing level of use and is suggested that this be considered a provisional limit until more information is available about the nature and extent of the groundwaters including recharge mechanisms, level of connection with other rivers and water bodies including the HPWMZ. The previous approach to classifying water abstraction has evolved over time as there was increasing recognition about the impacts of stream depleting groundwater takes. A number of water permits are already considered stream depleting by the 400m rule introduced in 2000. These consents are already linked to restrictions according to the Fernhill flow trigger.
- 2.23 However, not all groundwater consents have been incorporated into the surface flow allocation limit. This is because the new model has shown a different connection between Zone 1 groundwater takes and what was previously understood. The consents data is as follows:

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<sup>5</sup> TANK members are referred to the Agfirst reports for farm income data for further detail about the differences between income for the summer dry farm and the remaining farm types. Part 2 of the Agfirst report assessed farm earnings (expressed as EBIT Earnings Before Income and Tax) for the unirrigated land as \$141 with Part 1 of the report for the irrigated land in the TANK catchments finding EBIT varied from \$200 (grapes) to \$3,592 (vegetables) to \$33389 for kiwifruit from the base case)

Previous management								
River name	Minimum Flow Site Name	Minimum Flow (l/s)	Allocation limit Volume (m <sup>3</sup> /week)	Allocated volume With gw takes (m <sup>3</sup> /week)	Allocated volume Without gw takes (m <sup>3</sup> /week)	Allocation limit rate (L/s)	Allocated rate With gw takes (L/s)	Allocated rate Without gw takes (L/s)
Ngaruroro River	At Fernhill Bridge	2,400	956,189	1,819,073	1,362,948	1,581	3,969	
New management								
River name	Minimum Flow Site Name	Minimum Flow (l/s)	Allocation limit Volume (m <sup>3</sup> /week)	Allocated volume With gw takes (m <sup>3</sup> /week)	Allocated volume Without gw takes (m <sup>3</sup> /week)	Allocation limit rate (L/s)	Allocated rate With gw takes (L/s)	Allocated rate Without gw takes (L/s)
Ngaruroro River Surface water incl zone 1	At Fernhill Bridge	2,400 amended as necessary	N/A	N/A	N/A	1,581TBC (incl zone 1)  Amended as necessary	3033 plus zone 1	
Ngaruroro Catchment (groundwater)	N/a	N/a	total existing	total existing	none so far  total existing	N/A	936	

*Table 4: Water Allocation and Consents Data for the Ngaruroro River Management Areas*

- 2.24 Note that where Zone 1 has been changed compared to the previous 400m provision as a result of the new Heretaunga Plains water model, the draft plan allows for the consent holders to be able to either adhere to the minimum flow restrictions or contribute to (lowland) stream enhancement at an equivalent rate.

#### Ngaruroro River Flow Management

- 2.25 At meeting 41 the TANK Group received two alternative approaches to flow management one for an improvement to the status quo for the river but staying with existing minimum flows and a proposal to increase the minimum flow in a series of stages from plan notification until 2030 that eventually resulted in a minimum flow of 4200l/sec. The impact this had on existing investment, allocation limits and social and cultural well-being led to a reassessment of the options available.
- 2.26 The effects on river flow from changes to the minimum flow were summarised and provided to the TANK members following the TANK meeting and is provided separately along with this report.



- 2.27 A change of minimum flow in the Ngaruroro from 2400l/sec to 4200l/sec would result in limited benefit to the river ... usually for short periods in some years. It would also have very significant adverse effect on the ability to abstract water at an acceptable security of supply. The allocation formula that provides for security of supply (Q95 minus the minimum flow 3981-4200l/sec) results in a negative allocation at a minimum flow of 4200l/sec.
- 2.28 It was also noted that the stream depletion from groundwater abstraction across the Heretaunga Plains also has a significant effect on low flows. The Group has already adopted policy (see Policy 29) which would commit the Council (along with stakeholders) to investigating the feasibility of a water storage option to mitigate those effects.

#### TANK Group decisions

- 2.29 The following Table shows the two alternative approaches illustrating the range of non-consensus by TANK members. The Draft Plan Change will show this issue as not having been decided on by consensus.
- 2.30 Option A looks to a longer term and adaptive approach to reducing allocations and improving river flows by alternative means while Option B looks to a more targeted and direct approach to increasing the minimum flow triggers used to control water abstraction.
- 2.31 Both options are also dependant on the range of other ecosystem enhancement initiatives adopted so far by the TANK Group, including in relation to sediment loss management, nutrient management, stock exclusion, riparian land management and wetland protection and development.
- 2.32 Option A originally included the high flow water reservation component in recognition of the impact of changing the current water allocation regime on Māori social, economic and cultural well-being. However, it is not necessarily linked to Option A and could in fact be a stand-alone provision in the Plan. It is covered in more detail in the following section of this report. The main feature of option A is a focus on reducing the amount of water allocated over time with a new target allocation of 1300l/sec. This needs to be considered in light of the water consents data in Table 4.
- 2.33 The allocation limit change is founded on re-allocation based on 'actual and reasonable' use; a likelihood that there is a significant gap between allocated and used water; potential water use efficiencies; and that the allocation reliability is raised to 90%. It is also to bring the allocation limit to below 30% (27.6%) which is generally recognised as a reasonably environmentally conservative allocation based on advice from the Cawthron Institute<sup>6</sup>.
- 2.34 The reality between actual and reasonable water demand and allocated amounts needs to be more clearly ascertained before the level of over-allocation is better understood. Addressing the current level of over-allocation will be a necessary first step to managing allocations for the Ngaruroro River. Any new minimum flow at TANK PC notification<sup>7</sup> will only influence **new** water permits (plus existing consents that are to be renewed). In order for any new minimum flow to be otherwise applied to

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<sup>6</sup> Meeting 34. Considerations for Setting Low Flows and Allocation Limits, Joe Hay, Cawthron Institute

<sup>7</sup> Rules relating to water can have immediate legal effect from the time of notification. The same applies to objectives and policies in proposed plans. However, existing consents are unaffected by proposed rules. Review clauses in existing consents will typically only be triggered after the plan change becomes operative – not from when a proposed plan change is notified.

existing consents, a review requirement will need to be included so that existing consents are made subject to the new provisions and this will also require that there is an operative plan in place.

2.35 The reasons supporting Option A include;

- reduced adverse effect on social and economic well-being,
- alternative measures are less disruptive to communities and can be introduced in a staged cost effective manner,
- this approach is complements measures being developed to manage the stream depletion effects of the groundwater takes in the Heretaunga Plains Water Management Zone (HPWMZ) ,
- social equity and impacts on Māori cultural values and uses are also able to be addressed by alternative water reservation measures, and
- The allocation limit (compared to MALF) is reduced to more environmentally conservative levels.

2.36 The costs or risks associated with Option A include;

- uncertainty that any storage flow enhancement solution as part of managing the river depleting effects of groundwater takes in the HPWMZ will be developed in a timely manner,
- a reduction in abstraction opportunities through a reduction in allocation limit and potential adverse impacts on economic well-being of existing permit holders,
- uncertainty about land use change and how that might affect water storage options and water quality objectives. (This is a wider concern in relation to water storage and amendments are being drafted to resolve this concern),
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2.37 Option B is reliant on minimum flow increases, but this option aims spreading the impact over a longer timeframe.. The main benefit is a higher river flow at which restrictions in water takes are initiated. It is expected that the cessation of abstraction would be evident in an increase to the river flows. This restriction also means the river flow can be maintained at a higher flow for longer as water takes cease at higher flows.

2.38 As described above, an increase to this minimum flow will provide limited environmental benefits. The costs of the allocation reductions are likely to be significant in terms of changes to primary production and the subsequent impact of this on local economy, although the impact of the changes are gradual and enables landowners to adopt alternative land uses.

	Option A	Option B
<b>Minimum Flow</b>	Remains at 2400l/sec	<b>Step 1.</b> Notification; 2400l/sec <b>Step 2</b> 2025 increase to 2800l/sec <b>Step 3</b>

		2030 increase to 3200l/sec <b>Step 4</b> 2035 increase to 3600l/sec	
		<i>Note that new minimum applies at time permit is applied for or, if as a result of a review requirement, at the specified date provided the plan is operative by then.</i>	
<b>Water storage</b>	Council is committed to investigation/ development of storage options to provide for low flow enhancement as the resolution of the river depletion effect from the g/w takes in the HPGMZ  Refer policy 34	Council is committed to investigation/ development of storage options to provide for low flow enhancement as the resolution of the river depletion effect from the g/w takes in the HPGMZ  Refer policy 34	
<b>Allocation Limit</b>	Target allocation limit of 1300/sec (down from 1580l/sec)  Refer policy 36 and schedule 4	Either Allocation limit <sup>8</sup> decreases at each step on a pro rata basis across all consents so that the following allocation limits can be met: <b>Step 1</b> Notification; actual and reasonable Step 2 2025 reduce to 1181 l/sec (25% reduction) Step 3 2030 reduce to 781 l/sec (50% reduction) Step 4 2035 reduce to 381 l/sec (75% reduction)	Or Water is allocated on actual and reasonable use basis and permit holder subject to a lower security of supply with the higher minimum flow
		<i>Note in order to carry out pro rata reduction, all consents would need to be called in and reallocated before required pro-rata reduction amount is calculated.</i>	
<b>Water Permit Allocation Management</b>	Re-allocation of surface water will be on the basis of historic actual and reasonable water use. A sinking lid approach will be adopted to ensure ongoing reductions in allocation  Refer policy 36	As above	
<b>Emergency water takes</b>	Not provided for	Not provided for	
<b>B</b>			

<sup>8</sup> calculated by Q95 – minimum flow where Q95 is the 7 day avg summer flow exceeded 95% of time and for the Ngaruroro is 3981 L/s

<b>Emergency water takes</b>	10% of the allocation limit can continue to be abstracted after the minimum flow is reached	
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*Table 5: Ngaruroro R Minimum Flow Preferred Options*

- 2.39 There is currently no staff recommendation. However, as part of reporting to the RPC a staff recommendation will be provided to assist the RPC in making its decisions about what to recommend to the Council for notification.

### Tūtaekurī River Flow Management

- 2.40 The Tūtaekurī River is not fully allocated according to the existing flow regime and allocation limit for abstraction from this river. There is a strong desire amongst many TANK Group members to raise the level of protection being provided to the river by the current flow regime.
- 2.41 While understanding about the state of the instream values reliant on summer river flows is not supported by extensive data, there is anecdotal information relating to algal growth and low flows compared to historic flows. Further as is evident across the TANK catchment area, the river is also valued by local iwi who, like other marae and hapū, also consider their river requires a higher level of protection in order to support cultural uses, their historical connections with the awa and to enable them to carry out their role as kaitiaki.
- 2.42 The establishment of flow triggers and allocation limits is therefore also informed by habitat models and river flow statistics. The MALF (Minimum Annual Low Flow) for the Tūtaekurī is 3900l/sec and the Q95Flow is 3536l/sec. Additional analysis of flow data has also been carried out as the modelling reports have been finalised and the new modelling information is reviewed<sup>9</sup>.
- 2.43 SOURCE model predictions for the Tūtaekurī have compared the modelled flow records.. The results are summarised below in Table 2 below.

<b>Cease-take minimum flow (l/s)</b>	<b>No. days restriction</b>	<b>No. periods of &gt;=3 consec. days restriction</b>	<b>No. periods of &gt;=10 consec. days restriction</b>
2000	0	0	0
2300	0	0	0
2500	0	0	0
2800	11	0	0
	Climate equivalent to: 2002-2003 = 2 days 2008-2009 = 5 days 2014-2015 = 4 days		

*Table 26: Tūtaekurī River days of restrictions at different minimum flows*

<sup>9</sup> The data is still subject to confirmation and peer review. It is contained within the final modelling reports being prepared to support the Plan Change and which have been used in modelling the impact of different management scenarios.

2.44 Currently there is 395 l/sec unallocated from within the existing allocation limit for the Tūtaekurī surface water limit. Some adjustments are required to ensure we properly account for the new calculation of surface water takes and zone 1 takes for the Tūtaekurī as explained above for the Ngaruroro. Not allocating this would both mean the low flow trigger is not reached as quickly and also offset the security of supply impact a higher trigger has on existing abstractors.

Previous management								
River name	Minimum Flow Site Name	Minimum Flow (l/s)	Allocation limit Volume (m <sup>3</sup> /week)	Allocated volume With gw takes (m <sup>3</sup> /week)	Allocated volume Without gw takes (m <sup>3</sup> /week)	Allocation limit rate (L/s)	Allocated rate With gw takes (L/s)	Allocated rate Without gw takes (L/s)
Tutaekuri River	At Puketapu	2,000	928,972	850,505	376,163	1536	3078	720
New management								
River name	Minimum Flow Site Name	Minimum Flow (l/s)	Allocation limit Volume (m <sup>3</sup> /week)	Allocated volume With gw takes (m <sup>3</sup> /week)	Allocated volume Without gw-takes (m <sup>3</sup> /week)	Allocation limit rate (L/s)	Allocated rate With gw takes (L/s)	Allocated rate Without gw-takes (L/s)
Tūtaekurī River Surface water incl zone 1	At Puketapu	amended as necessary	N/A	N/A	N/A	1,536  1140 (tbc) (Surface incl zone 1)  OR  amended as necessary	720  surface plus zone 1	
Tūtaekurī Catchment (groundwater)	N/a	N/a	none so far  total existing	none so far  total existing	none so far  total existing n	N/A	N/A	
Mangaone River	Puketapu	2000				140	109	
Mangatutu River	Puketapu	3800				120	141	

2.45 Because of this unallocated water, future flow management options for the Tūtaekurī River are less constrained by adverse impacts on primary production and associated flow-on economic and social effects. If security of supply does not change appreciably, economic activity would also not reduce appreciably. Any increase in minimum flow and associated decrease in allocation limit results in an

opportunity cost that means any current or future demand for water will not be met. However, future demand could potentially be met by high flow storage solutions rather than further abstraction.

- 2.46 The current allocation limit allows for 1536l/sec to be abstracted, which is some 39% of MALF. As noted above, according to advice from Cawthron10, abstractions over 30% of MALF can be considered a high degree of flow alteration (on average across all rivers) and allocations of less than 30% are increasingly considered more conservative in terms of impact on the river.
- 2.47 The options preferred by the Tūtaekurī management face the same lack of consensus as for the Ngaruroro River.
- 2.48 Option A is for the allocation limit for the Tūtaekurī to be reduced by 395l/sec to 1140l/sec and the minimum level increased to 2500l/sec, this results in abstraction at 29% of MALF and provides a habitat protection level close to 80%.
- 2.49 While there is a high level of support for Option A, the Treaty Partners group are seeking a higher minimum flow in the long term, although there has been no clear direction as to their preferred position.

#### Mangaone and Mangatutu Rivers

- 2.50 Some TANK Group members identified a need for more explicit direction for managing abstraction from the two largest tributaries of the Tūtaekurī, the Mangaone and the Mangatutu. Both of these rivers are proposed to be subject to a prohibition on damming because of their instream values for high natural character (Mangatutu) and their contribution to the trout fishery.
- 2.51 The table below provides some overview statistics and suggests a higher protection level for the allocation limit on account of the fishery values.

	Naturalised MALF	Minimum flow	Allocation Limit	Allocation as a percentage of MALF	Proposal
Mangaone River at Rissington	1400 L/s (from SOURCE model calibrated to continuous flow record)	Puketapu trigger	109 L/s	7.8%	Increase limit to 140l/sec
Mangatutu River at Station Bridge	1200 L/s (from correlation with Puketapu)		161 L/s	13.4%	Decrease limit to 120l/sec

Table 3: Mangaone and Mangatutu River allocation proposals

### 3. Reservation and Priority Allocation

- 3.1 Please refer to the Meeting 41 cover report (section 2). Also relevant is the further information provided by the Social and Cultural Assessment by Dr A Cole of iPansophy at meeting 41.

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<sup>10</sup> TANK Meeting 34.

- 3.2 The issues surrounding historic injustices to Māori and how they are being resolved within NZ society and law are complex and largely beyond the scope of this paper. However, there are some aspects that are relatively narrow in scope that can be considered by the TANK Group and wider community. They relate to water allocation choices and potential opportunities to respond to the social injustices that arise where there is inequitable access to resources. Some of this is being addressed by Treaty Settlements as noted in the Meeting 41 report.
- 3.3 Looking to the future however, there is an opportunity to ensure that access to future water resources is managed in a way that addresses the current inequitable approach to resource allocation in respect of the Māori community.
- 3.4 Since 1967 the management of water resources, including access to water, has been managed through national regulation beginning with the Water and Soil Conservation Act. Under the RMA, regional councils now have the functions and duties to allocate water. Water abstraction is usually according to the cheapest option for its abstraction that was available and surface water would generally be allocated first followed by groundwater. Water allocation has been carried out on a first-in first-served approach. Where there were no limits set, resources in some places have become over-allocated. The establishment of limits emphasises the scarcity of the resource in some places and results in a higher value being placed on it.
- 3.5 As new water demands arise, the remaining solutions to potential water users are generally limited to storage options, when water is taken at times of plenty and stored for use when supplies are limited.
- 3.6 Where there is water available for allocation, there is more flexibility to the community to consider priority end uses and to reserve or allocate water for specified activities (compared to where water is already allocated and supports existing beneficial and economic uses).
- 3.7 A suggestion to reserve or allocate some proportion of the high flow allocation water to Māori has been made at meeting 41. Exactly how large or small the proportion might be is a value judgement to be made. HBRC staff note that in relation to marine aquaculture space, 20% of the allocable space was the proportion which legislation had reserved as an allocation for Maori. The reason for this reservation is to address concerns that first in first served does not always result in equitable water allocation and in particular, that equitable access by Māori to water has not been adequately considered in the past. This is partly evidenced by the information provided by the cultural and social assessment that highlighted Māori are unevenly represented in the negative social health indicators.
- 3.8 The RMA S30(4) does enable councils to allocate water to a “type of activity” but not to individuals or organisations. A possible solution is therefore to reserve (high flow) water specifically for the development of Māori social, cultural and economic well-being. It provides scope for Māori to become part of high flow storage opportunities either on their own or in association with other interests. While Māori entities could advance their own water storage scheme, there is also an incentive for private proposals to develop water storage solutions with Māori entities so as to build greater levels of support for such schemes.
- 3.9 Such an approach would also enable Māori to determine the fate of a proportion of the stored water, and to consider ways in which the stored water can develop a range of their social, cultural

and economic needs. This can include a range of opportunities including irrigation or release at low flow times back to the awa.

- 3.10 However, access to the reserved water would still be via a resource consent both for the storage of the water and the taking of water to storage. There is a large range of Māori entities including land owners, Treaty settlement organisations, hapū and marae that may wish to be part of a water storage proposal that seeks to develop social, cultural or economic well-being for Māori. In order to guide any allocation and development of stored water solutions, Council and the Māori community will need to develop some guidance as to how Māori applications for any reserved allocations would be decided.
- 3.11 This can be done outside the RRM Plan itself, possibly through a joint Iwi Hapū Management Plan. Such a plan is considered essential to assist future decision making for consent applications for storage water allocations. Until further advice is received, it is assumed that decision makers for any such iwi/hapū plan will be Māori entities that whakapapa to the water body in question, and this will need to be defined in this TANK plan change.

## Plantation forestry

### NESPF background and comparison with regional rules

- 6.1 New national regulations for the Plantation Forestry sector came into effect on May 1st 2018. The National Environment Standards for Plantation Forestry (NES-PF) are regulations made under the Resource Management Act. Regulations in the NES-PF override existing rules in regional plans and district plans, although in a limited number of circumstances, some rules in district plans and regional plans can be more stringent than regulations in the NES-PF. In this way, the NES-PF removes unnecessary inconsistency amongst regional plans and district plans across New Zealand
- 6.2 Hawke's Bay Regional Council has had a comparatively permissive approach to the management of forestry activities as compared to other regional councils. This relatively permissive approach dates back to the 1990s and early 2000s when district plans in Hawke's Bay were intended to be the principal rule book for land use activities under the RMA.
- 6.3 As a result of the NES-PF coming into effect from 1 May 2018, a significant number of forestry activities will now be subject to resource consents and other requirements. These requirements will be a substantial step change for both HBRC, TLAs and Hawke's Bay forestry operations.
- 6.4 The NES-PF incorporates established good forestry management practices through permitted activity conditions. Plantation forestry activities will generally be permitted where the conditions are complied with, unless the activity is in a high risk area. The provisions of the NES-PF that apply to plantation forestry operations will depend on the nature of the plantation forestry activity, where the activity is located, and how many activities are involved.
- 6.5 All plantation forests (and the activities within them) over 1ha in size come under these new rules. There is an estimated 26,000ha (about 8% of the land area) of plantation forestry located in the TANK catchments that come under these new regulations.
- 6.6 All regional and district councils must 'align' their plans with the new NES-PF. Any such 'alignment' amendments to plans can be done without any formal submission, hearing and appeal process



associated with a publicly notified plan change proposal. 'Aligning' plans with the new NES-PF involves two main components:

- 6.6.1 Identifying rules that duplicate or conflict with the NES-PF and removing the duplication or conflict "as soon as practicable" after the NES-PF comes into force (section 44A); and
  - 6.6.2 Identifying where a plan rule may be more stringent than the NES-PF5 under Regulation 6 (section 43B(1)-(2)) as a matter of good practice.
- 6.7 HBRC is yet to complete alignment of the RRMP and Regional Coastal Environment Plan due to current limitations in availability of suitable planning staff, but nevertheless this is intended to be completed by the end of 2018.

#### Likely changes to how forestry is done

- 6.8 The new regulations mean that most forestry operations will need to change their planning and practices. In broad terms, the NES-PF generally permits most plantation forestry activities provided they comply with a range of performance standards. If performance standards cannot be complied with, then the forestry activity will fall into one of the resource consent categories.<sup>11</sup> Many of the performance standards relate to the erosion risk of the activity and the erosion risk of the land. Other conditions relate to completion of planning and preparation requirements. Being a 'permitted' activity does not mean that foresters do not have obligations. For example, foresters will need to give notice to Regional and/or District Councils within 20-60 days prior to some plantation forestry activities taking place
- 6.9 To support implementation of the NES-PF, the Government has released several decision support 'tools'. For example, an online mapping tool is available to identify the corresponding 'erosion susceptibility classification' for any area of land.
- 6.10 The new regulations mean that most forestry operations will need to change their planning and practices. On a whole, most forestry activities are permitted activities unless they trigger certain conditions. These conditions mostly relate to the erosion risk of the activity and the erosion risk of the land. Other conditions relate to completion of planning and preparation requirements.
- 6.11 Permitted activities as assessed as not having significant adverse effects. However, being a 'permitted' activity does not mean that foresters do not have obligations. For example, many forestry activities need to be notified to Regional and District Councils within 20-60 days prior to the activity taking place.
- 6.12 If forest activities are not 'permitted', they will either have a 'controlled', 'restricted discretionary' or 'discretionary' status. This classification will depend on the level of environmental risk. Councils have varying levels of ability to dictate conditions of the activity based on its status. Statuses other than 'permitted' require activities to gain a resource consent.
- 6.13 Environmental risks can be determined by the location of the activity, the kind of activity, and its scale. Many core forestry activities are required to have plans prepared ahead of time documenting

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<sup>11</sup> Resource consent categories are controlled, restricted discretionary, discretionary and non-complying activity classifications.

what risks are present and how these are being managed. Plans can be requested by Councils or other authorities at will.

- 6.14 As an example of some conditions for permitted activities within the forestry sector:
  - 6.14.1 For afforestation, permitted activity conditions include setback requirements for tree planting near water, coasts, and significant areas.
  - 6.14.2 For harvesting to be a permitted activity, foresters must submit a harvest plan to their local council if requested.
  - 6.14.3 For earthworks, permitted activity conditions include the requirement to install and maintain storm water and sediment control measures. Spoil must also not be deposited in areas it could cause harm further downstream.
- 6.15 If not a permitted activity, regional councils may decline a consent application for forestry activities based on a limited set of conditions. For afforestation as a restricted discretionary activity this includes management of erosion and sedimentation effects as well as sufficient or quality of measures in place to avoid, remedy or mitigate erosion, including:
  - 6.15.1 planting and species,
  - 6.15.2 geotechnical and slope stability effects,
  - 6.15.3 sequencing of harvesting,
  - 6.15.4 requirements to re-establish vegetation cover post-harvest
  - 6.15.5 future harvesting and earthworks effects

#### [Need for other provisions in addition to forestry management plans?](#)

- 6.16 Under the NES-PF, Councils can impose stricter standards on forestry activities under limited circumstances. One such circumstance is when a rule gives effect to an objective under the National Policy Statement for Freshwater Management. Performance standards already within the NES-PF do apply controls on plantation forestry activities within close proximity to waterbodies. If the TANK plan change was to apply stricter controls than those in the NES-PF already, any rules proposed to be stricter than the NES-PF would certainly require robust evaluation and justification as at least required by s32 of the RMA.
- 6.17 If effectively implemented and complied with, the NES-PF is very likely to lead to improved environmental performance in the TANK area without the need for stricter rules. This view is based on HBRC staff opinion as well as external advice procured through the implementation of Farm Environmental Management Plans for plantation forestry operations located in the Tukituki Catchment.

#### [Role in landowner collectives?](#)

- 6.18 It's well recognised that relative to pastoral farming, plantation forestry reduces sediment yields over the course of the rotation, but often delivers a spike of sediment on harvest ([link to research here](#)).

- 6.19 Currently the plan does not envisage flexibility in the water quality objectives, that would allow for any exceedances around harvest time. The implication is that harvest operations would need to be carried out in a way that enabled water quality objectives to be met.
- 6.20 There are no obligations for forestry operations to notify other members of the catchment of any planned forestry operations. The draft plan change would require that if the forest land use covers more than 75% of a property, a landowner is not obliged to prepare either a Farm Environmental Management Plan or join a Catchment Collective. The requirements of the NES for the forestry operations are expected to address sediment and vegetation management. These provisions do not prevent a forest land owner from being part of a collective at any time.
- 6.21 The impact of forestry operations on nitrogen leaching is assessed by other councils as being very low<sup>12</sup>. However, it is widely acknowledged that OVERSEER estimates of Nitrogen and Phosphorus impacts from forestry operations is very limited. Other models such as NuBaIM may become better suited to model the impact of these activities as they are further developed.

## 7 Freshwater Management Units and Water Management Zones

- The NPSFM requires councils to establish water quality objectives and to set flows and limits for water quantity for all freshwater management units (FMUs). The way in which FMUs boundaries are established is not specified however, NPSFM guidance states that the definition of FMUs is intentionally flexible so councils can determine the spatial scale best suited to managing fresh water in the specific circumstances of their region. The use of spatial units in land and water planning is not a new concept for councils, as this approach is already used by councils for water allocation.
- 7.2 All of the catchments within the TANK boundaries are connected both physically through surface and groundwater inter-connectivity and their connection to the estuary and also through cultural and social connections across urban areas and across marae/hapū boundaries. We have not specifically considered other boundaries for FMUs to date because the TANK catchments are collectively considered (by HBRC) to be an FMU. It is also because containing the rivers in one FMU can better reflect the 'mountains to the sea' Ki Uta ki Tai approach which is acknowledged in the plan draft preamble as a key principle for integrated decision making in this plan change.
  - 7.3 Spatial units for targeted management can be created within a broader FMU. This can be in order to meet specific objectives (such as water quality states) or where activities collectively affect an objective (including for example a minimum flow or allocation limit). Thus water management zones are defined to consistently manage activities within them to meet relevant objectives and are integral to how resource use activities are managed through rules.
  - 7.4 As the plan change provisions have been developed, the decision making has taken into account both catchment scale management through things like the SOURCE and SedNet models and the need to ensure management at a property scale addresses of cumulative effects that contribute to the overall freshwater objectives. This leads to the development of rules and regulatory requirements that account for both connectivity and cumulative contributions.
  - 7.5 Maps have been being prepared to show the management areas for which specific water management objectives are relevant and where rules apply as indicated by the requirements of the

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<sup>12</sup> Some data from Tukitukituki being collated.

Draft Plan Change. They will be available for TANK meeting 42. The nature of land and water use activities and their impact on water quality and quantity means we have management zones for managing the effects of diffuse and direct contamination from land use activities on water quality objectives and different management zones that manage the cumulative impacts of water takes from specified water bodies. The impact of both these sets of activities is being integrated through the use of a single FMU that ensures the waterbody connections are not overlooked.

- 7.6 A further set of maps will be an important part of the implementation plan to show where the priority catchments are in relation to meeting water quality objectives. These show the effect of schedule 3 which establishes the priority areas for management attention. This ensures that land and water use will be managed at a scale that ensures local responsibility and action to meet the agreed water quality objectives (and ensuring that lower reaches do not 'bear the brunt' of adverse effects). They are included in the implementation plan (rather than as planning maps) because they guide implementation decisions particularly in relation to priority action and decisions about financial incentives. It enables the maps to be updated as work is completed.

### Hapū Boundaries

- 7.7 The Treaty Partners Working Group have proposed a second set of spatially defined management boundaries. There are numerous hapū with mana whenua status within the TANK catchments, but have suggested amalgamating these for more efficient management. The boundaries have been aligned as much as possible with State of the Environment or flow measuring sites with some boundary alignment with traditional hapū rohe.
- 7.8 The values and attributes report<sup>13</sup> prepared to assist the decisions making for the TANK Plan Change suggested that the expression of mana-a-ki-a-wai, te mana o te whenua, te mana o te moana and kaitiakitanga could be assisted through cooperation between neighbouring hapū. It was accepted in the report that water being passed from one hapū management area to another should be of the highest quality possible.
- 7.9 Rules are not applied according to social management boundaries which is what the hapū boundaries represent (nor are they made according to other social management boundaries like district council boundaries). They cannot be based on those sorts of boundaries because they don't adequately reflect contaminant loads and pathways and connectivity between water bodies, including the Heretaunga Plains aquifers and estuaries.
- 7.10 However, because they are relevant to social boundaries and how responsibilities are accounted for, the use of hapū boundaries may be developed further as a management tool for the implementation of the Plan and also for things like providing input into resource consent applications.
- 7.11 The implementation plan identifies stakeholder responsibilities for ensuring mitigation measures, systems and processes are set up to ensure freshwater objectives can be met. It is suggested that hapū input into the implementation plan could be provided in a way that aligns hapū boundaries and local issues.

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<sup>13</sup> Ngaruroro River; Values and Attributes Report October 2016.

## Values Tables

- 7.12 The values for which water is to be managed are currently referred to in the Plan Change Draft as Table xx. The RPS already has a values table introduced with PC5 (and is no longer subject to any contest).
- 7.13 The TANK group agreed on the values listed in earlier meetings and while there are a few minor difference with the RPS (including that the TANK Group didn't distinguish between primary and secondary) there are none of sufficient significance to warrant a change to the RPS. The TANK Group's (draft) objectives are all consistent with the RPS values and provide for them appropriately.
- 7.14 The mana whenua carried out additional values/attributes analysis and essentially provided considerably more detail and rationale for the values already identified in the RPS. The two sets of values were displayed in two different diagrams; both shown in attachment 1 below for reference.
- 7.15 There was some debate with the TPG about whether a new diagram that incorporated all the expressed values should or could be developed – however, this appears unlikely as there is no appetite for this amongst the Māori community. Also necessary to be considered is whether there is any need to refine or provide more detail in the RPS table as part of this plan change. . These references all relate in some way to how resource consents might need to consider impacts on a site specific scale where they are not already covered by the setting of limits and freshwater quality objectives.
- 7.16 There is questionable value provided by including a table of TANK values in this plan change in addition to what is already in the RPS. The NPSFM NOF steps through how values must be identified in the setting of the objectives and limits, but does not require values to be included specifically in regional plans. Note that PC6 did not include a further list of values in the RRMP. For the RPS to meaningfully influence the preparation of catchment-based regional plan changes, Table 1 in Policy LW2 was considered necessary and more appropriate to be stated in the RPS.
- 7.17 A further list of values in the TANK plan change is not likely to materially assist decision making and might in fact create confusion between the two parts of the Plan.
- 7.18 However, there may be value, in light of the commitment to providing for kaitiakitanga, in including the new iwi values diagram produced by the Treaty Partners Group (through the preparation of the Ngaruroro Values and Attributes report) in the preamble to provide additional context to the Plan content.
- 7.19 This might be seen as 'nice-to-have-narrative', but it does further develop understanding about the Māori world view and how it has influenced this particular plan change. It is suggested that it remains in the preamble.

**Attachment 1**

Figure 3 below shows the major wāriū (value) groups and the aspects for freshwater management and sub-values associated with those groups. The wāriū diagram shows the interrelated nature of the values and their groupings and the link between the Amorangi of values from Te Iho Matua to Te Aho Matua and the specified values listed in Table 2 below

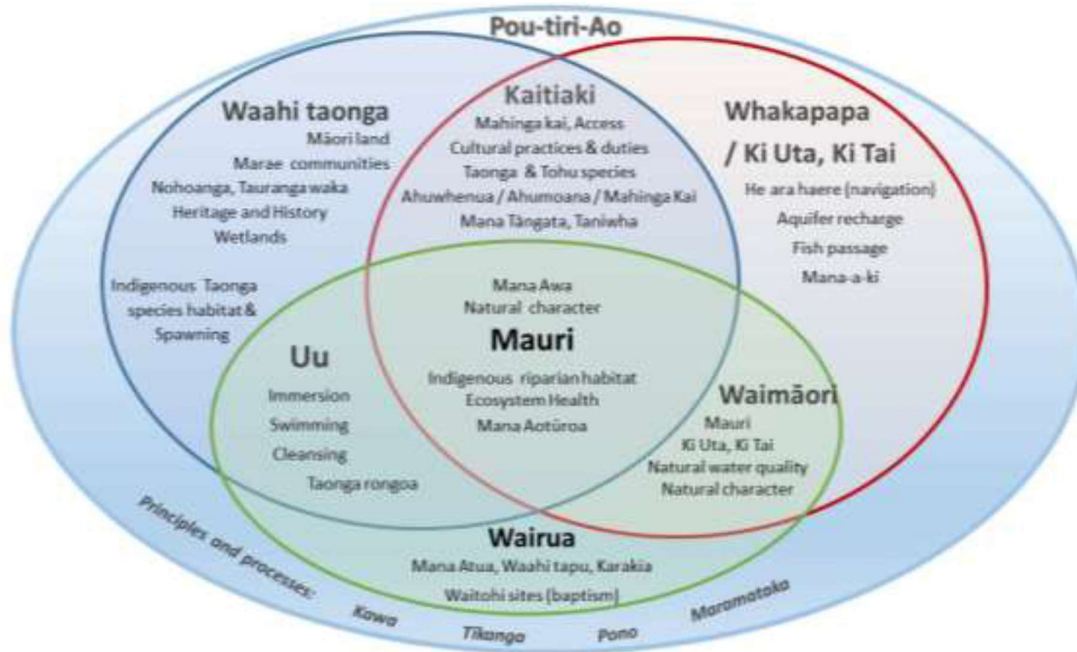
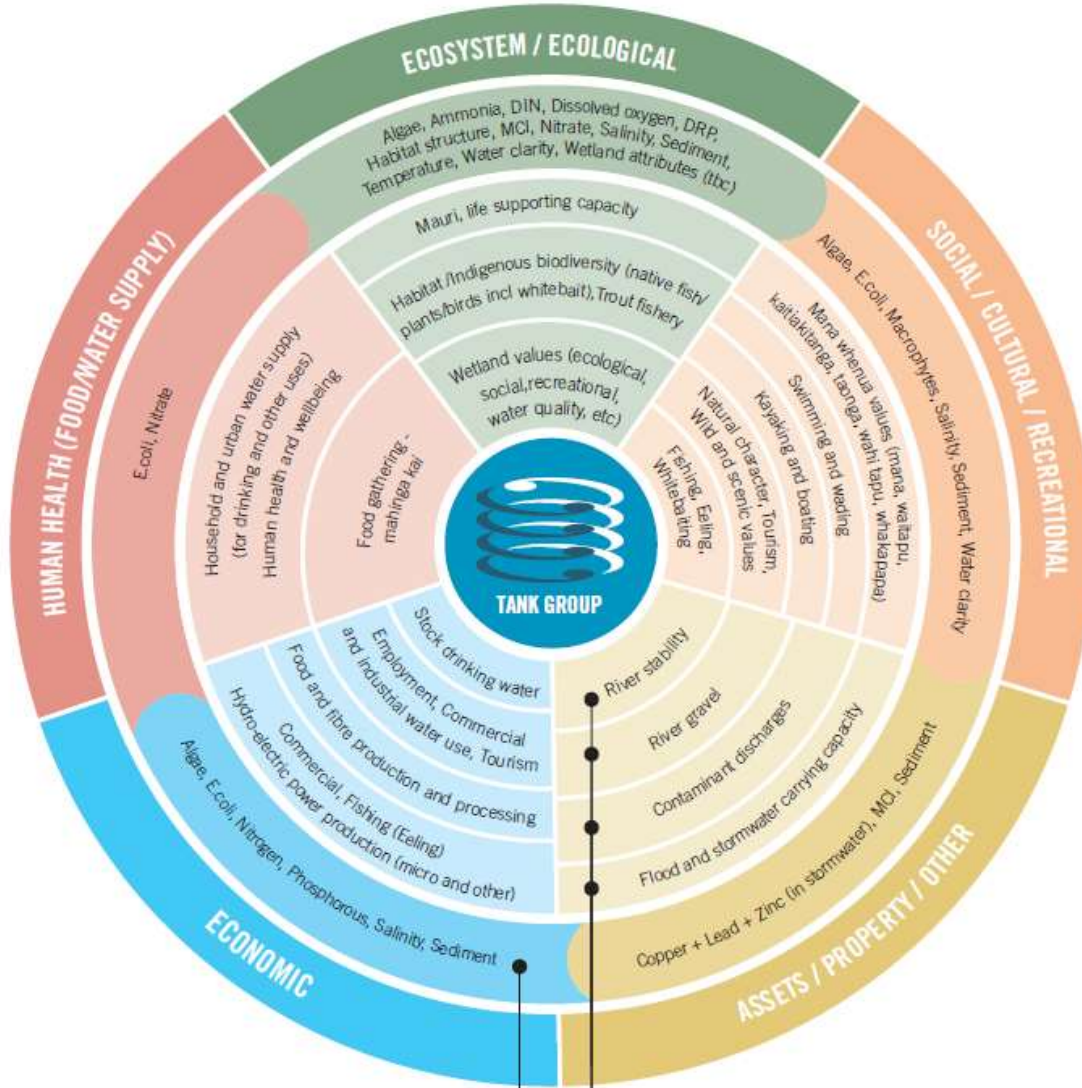


Figure 2; Wāriū (value) groups and aspects for management in the Ngaruroro catchment

Table 7; Awa-wide wāriū (values) for the Ngaruroro River surface water catchment

Wāriū group	Sub-values: Awa-wide
Mauri	Ecosystem health Indigenous riparian margin Natural character
Uu	Uu (immersion, swimming, cleansing)
Waimāori	Mauri; Ki Uta ... Ki Tai ... Natural water quality Natural character
Wairua	Karakia Mana Atua
Kaitiakitanga	Ahumoana / Ahuwhenua / Mahinga kai (species) Ahumoana / Ahuwhenua / Mahinga kai (practice) Te hāpai ō ... Te Tūturutanga mahi pono ... Access
Whakapapa / Ki Uta ... Ki Tai	Fish passage

**TANK VALUES**  
Attributes for water quality



Attributes  Values 

- **Algae** - Includes periphyton, the algae found naturally on river beds, and phormidium, the cyanobacteria that can cause dog deaths
- **DIN** - Dissolved Inorganic Nitrogen, **DRP** - Dissolved Reactive Phosphorus
- **Economic** - Recreational and water supply attributes are also relevant
- **Māori** - Values and attributes are being further developed with tāngata whenua
- **MCI** - Macroinvertebrate index